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though looked upon with strong disfavor by our transatlantic fellow-workers, who seem as yet not fully to understand the nature of the recent rapid advance ornithology has made in this country, or to appreciate the thoroughly substantial nature of the evidence on which it is based. The constant and energetic exploration of the great North and Northwest, of the vast trans-Mississippian region, and of our sub-tropical borders, during the last two decades, by scores of indefatigable collectors and observers, has certainly not been in vain, as witness the hundreds and often thousands of specimens of single species, representing the gradually varying phases presented at hundreds of localities, that have passed through the hands of our specialists.

While the field of North American ornithology is far from an exhausted one, the progress made during little more than a half century is certainly creditable to American enterprise and to American students, though to Americans alone, of course, belongs only a share of the credit of the marked advancement.

In a short article like the present, devoted exclusively to what Americans have accomplished, justice can hardly be done to all, nor is there room to more than allude to the fact that much has been done in aid of the general advance by numerous foreign writers. By no means have all the names of even Americans that are deserving of recognition here, been mentioned in the present article, nor have all articles been cited that are entitled to a high degree of prominence; the omissions, however, are those of limitation and not of choice. Neither is there space to notice the several important ornithological collections that have been gathered, to which alone many pages might be profitably devoted.

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#### RECENT LITERATURE.

ORTON'S COMPARATIVE ZOOLOGY.<sup>1</sup> — The plan of this book is excellent, and the distribution of the various subjects well carried out. The first half of the book is devoted to comparative anatomy and physiology, containing chapters with titles such as these: Plants and Animals distinguished, Life, Organization, The Food of Animals, How Animals eat, How Animals breathe, Secretion and Excretion, How Animals move, The Nervous System, Development. This portion of the work is more carefully prepared than the second, on classification. Now and then, but not often, we notice a slip of the pen, as "structureless

<sup>1</sup> *Comparative Zoölogy, Structural and Systematic.* For Use in Schools and Colleges. By JAMES ORTON, A. M. New York: Harper and Brothers. 1876. 12mo, pp. 396.

sponge," whereas the sponge is a many-celled animal, with ciliated epithelium, and producing eggs and spermatc particles. On page 164 the figure of the nervous system of a starfish will scarcely do, as in nature but a single nerve is sent to each ray, and the ganglia are not at all as represented by the artist. In the section on instinct and intelligence, which in the main is excellent, the author remarks of the bee, "We do not find one clever and another stupid." We had supposed that observers had noticed a marked individuality among bees and other social insects. As regards the beaver (see page 184), Mr. Morgan has well shown that it acts by reason as well as instinctively. "The egg" of the *Amœba* is spoken of on page 191, though no rhizopods are known to reproduce by eggs; for this reason the statement on page 188, that "all animals, without exception, arise from eggs," should be modified, as there are whole orders of Protozoa which do not produce eggs. On page 201 it is said that the "grand characteristic" of the vertebrate embryo is the primitive stripe, "which does not exist in the egg of any invertebrate." It is known to exist in the eggs of the leech, earthworm, and allied forms, and with very rare exceptions in the eggs of all insects yet observed. Still this portion of the work is well written, in a clear, lively, and attractive style, and the book is certainly nowhere dull reading.

In some respects we are disposed to find fault with the portion on classification, though on these points naturalists are of many minds. Certainly the many-celled sponges do not belong with the Protozoa, nor are they compound *Amœbæ*. The *Gregarinæ* are not "the simplest animal forms of which we have any knowledge," though the author rejects the *Monera* of Haeckel. The *Polyzoa*, *Brachiopods*, and *Tunicata* are retained among the *Mollusca*, and in fact the classification is not to our mind so advanced in its treatment as other parts of the work. The old division of *Entomostraca* is retained, though *Limulus* represents quite a different division of *Crustacea*. On page 276 the lobster, represented by a time-honored English cut, is called *Astacus marinus*. The *Arachnida* are by the author provided with "antennæ," though they do not exist in nature. Much space is devoted to the vertebrates, as seems necessary in such a book as this, which has many useful features about it adapting it for use in schools. The three hundred and fifty wood-cuts are in almost every case, we should judge, borrowed from other works, and a larger number represent European animals than is suitable in a book designed for use by American youth.

RECENT BOOKS AND PAMPHLETS. — Practical Botany, Structural and Systematic, the latter Portion being an Analytical Key to the Wild Flowering Plants, Trees, Shrubs, Ordinary Herbs, Sedges, and Grasses of the Northern and Middle United States east of the Mississippi. By August Kœhler. Copiously Illustrated. New York: Henry Holt & Co. 1876. 12mo, pp. 400. \$3.00.

The Andes and the Amazon; or, Across the Continent of South America. By James Orton, A. M. Third edition, revised and enlarged, containing Notes of a Second Journey across the Continent from Para to Lima and Lake Titicaca. With